

Writing Exponential Functions
Day 2 HW

Name KEY
Date _____ Block _____

EX:

x	y
0	
1	
2	158
3	790
4	3950

$3950 \div 790 = 5$, $790 \div 158 = 5$ so $b = 5$

Based on the value above, this function is an Exponential Growth or Exponential Decay?
It is an Exponential Growth since $b > 1$

To find the initial value, a , work backwards in the table until you find the value of y when $x = 0$.
 $158 \div 5 = 31.6$, $31.6 \div 5 = 6.32$ Fill in the table.
This means the initial value $a = 6.32$

Write the Exponential equation in the form $y = a \cdot b^x$

$y = 6.32 \cdot (5)^x$

Write an exponential function for each table below using the steps above in Example 1.

1. $y = 12(2.9)^x$

x	y
0	12
1	34.8
2	100.92
3	292.668
4	848.7372

2. $y = 4(0.5)^x$

x	y
0	4
1	2
2	1
3	.5
4	.25
5	.125

$\times 2$
 $> \div 2$
 $> \div 2$

3. $y = 9.4(0.3)^x$

x	y
0	9.4
1	2.82
2	.846
3	.2538
4	.07614
5	.022842
6	.0068526

$\div (.3)$
 $\div (.3)$
 $\times (.3)$
 $\times (.3)$

4.

Years since 2000	4	8	12	16
Population	336	5376	86016	1376256

USE CALCULATOR \Rightarrow STAT edit, STAT calc

Write an exponential function to represent population growth since the year 2000.

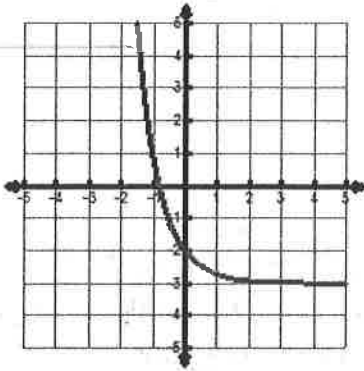
$y = 21(2)^x$

10. EXPREG

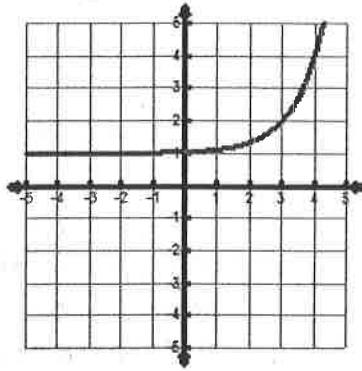
Practice- Practice- Practice- Practice- Practice- Practice- Practice- Practice- Practice! ☺

Determine whether each function below represents an Exponential Growth or Decay.

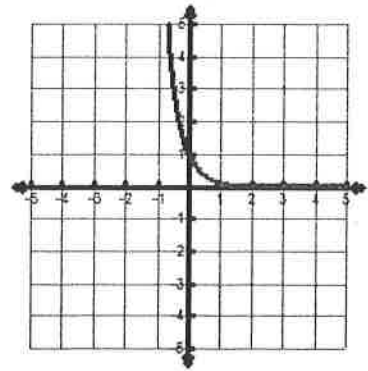
5. Growth or Decay?



6. Growth or Decay?



7. Growth or Decay?



8. Exponential Growth or Decay?

$$y = .1(7)^x$$

9. Exponential Growth or Decay?

$$y = 3(.25)^x$$

10. Exponential Growth or Decay?

$$y = \left(\frac{3}{4}\right)^x$$

11. Exponential Growth or Decay?

$$y = \frac{1}{2}\left(\frac{5}{3}\right)^x$$

12. Given $f(x) = 4(5.6)^x$, identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor _____

Growth/Decay Rate 5.6

Initial Value 4

13. Given $f(x) = 11(.40)^x$, identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor _____

Growth/Decay Rate .40

Initial Value 11

13. Given $f(x) = \left(\frac{1}{4}\right)^x$, identify the growth/decay factor, growth/decay rate, and the initial value.

Growth/Decay Factor _____

Growth/Decay Rate 1/4

Initial Value 1